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(11)

**EP 1 101 874 A1**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
23.05.2001 Bulletin 2001/21

(51) Int Cl.7: **E03C 1/04**(21) Application number: **99830716.9**(22) Date of filing: **18.11.1999**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE**  
Designated Extension States:  
**AL LT LV MK RO SI**

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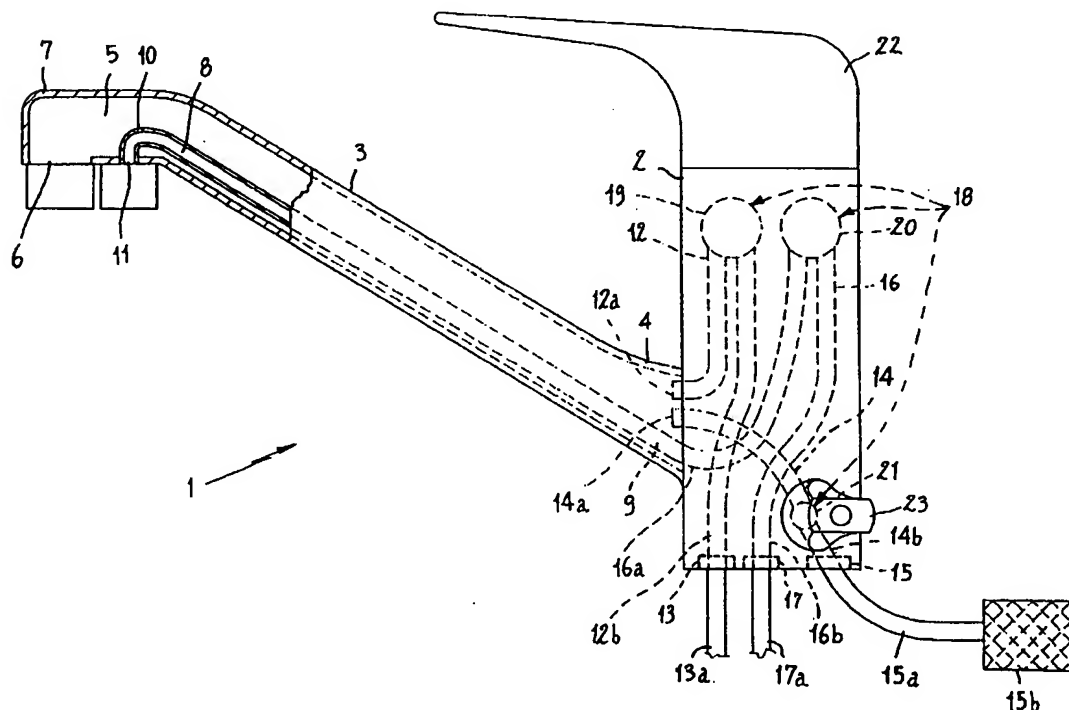
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(54) **Tap for the delivery of water**

(57) A tap (1) comprises a first delivery conduit (5) able to deliver cold water and pure water. The tap (1) comprises a second delivery conduit (8) distinct and separate from the first delivery conduit (5), adapted to

deliver hot water. The sharing by the cold water and by the pure water of the same delivery conduit (5) enhances the guarantees that the prescribed chemical-physical characteristics of the pure water shall be retained.

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## Description

[0001] The present invention relates to a tap for the delivery of water comprising the characteristics expressed in the preamble to Claim 1.

[0002] As is well known, taps are usually constituted by a delivery conduit and by a valve assembly through which it is possible to determine the delivery of cold water coming from an urban water pipeline and/or of hot water also coming from the water pipeline after passing through a boiler or similar heating apparatus.

[0003] It is well known that water coming from the normal urban supply pipeline, while potable, may contain even considerable quantities of chlorine, calcium and/or other undesirable substances which, over time, may harm individuals' health.

[0004] In the attempt to overcome the aforementioned problem, taps are known which are able to deliver, in addition to the water coming from the urban pipeline, "pure" water coming from a filtering apparatus interposed between the tap and the urban water pipeline.

[0005] For the purposes of the present description, the adjective "pure" refers to any water having controlled chemical-physical characteristics, for instance coming from a suitable container or from a filtering and/or conditioning unit in turn connected to the water supply pipeline.

[0006] An example of a tap having the above characteristics can be observed in US patent number 5,753,118. This document describes a tap having two separate dispensing conduits able respectively to dispense water coming from the urban water supply and pure water obtained by filtering said water. To the first dispensing conduit is associated a valve assembly able to be activated manually by means of an appropriate control lever to determine the dispensing of cold and/or hot water. To the second dispensing conduit is associated an opening/closing valve able to be activated by means of an external handle to control the dispensing of the pure water. Moreover, the filtering apparatus destined to purify the water coming from the pipeline is directly engaged to the body of the tap in such a way as to be operatively interposed between the second conduit and the pipeline itself

[0007] It should however be noted that the tap described above has considerable bulk since it comprises two mutually distanced dispensing conduits and a filtering apparatus of large size, directly engaged to the body of the tap.

[0008] In the attempt to improve, in terms bulk, of the taps destined to dispense also pure water, the US document 5,417,348 proposes a tap wherein a first and a second dispensing conduits destined respectively to dispense pure water and cold and/or hot water coming from the urban supply pipeline, are coaxially positioned one inside the other thereby constituting a single dispensing element. Upstream of the first conduit is operatively engaged a first valve able to be switched be-

tween the open and shut position to determine the delivery of pure water, whilst downstream of the second conduit are operatively engaged a second and a third passage valves able to be switched between the open and shut position to determine respectively the delivery of cold and hot water coming from the urban water supply pipeline.

[0009] This configuration enables considerably to reduce the bulk of the tap, since the first and the second conduit are integrated inside each other.

[0010] It should be noted that both taps described above provide for a separate disposition of the conduit destined to the delivery of water coming from the water supply pipeline relative to the conduit destined to the delivery of pure water, since it is a generally held opinion that pure water, in order to be considered as such and to retain its characteristics, must never come in contact with water from the supply pipeline, or with the components destined to allow the passage thereof.

[0011] In contrast with this commonly held opinion, the Applicant has perceived that a separate disposition of the conduit for the delivery of water from the supply pipeline and of the conduit for the delivery of pure water is quite pejorative relative to the hygiene guarantees of the pure water delivered by the tap. In this regard it should be observed that pure water, delivered less frequently than pipeline water, is often made to stagnate for long time intervals in the conduit segment lying between the valve and the delivery outlet.

[0012] In accordance with the present invention, it has been found that in order to allow better guarantees in terms of quality of the pure water delivered, it is preferable for the delivery of the pure water to occur through the same passages dedicated to the delivery of the cold water, taking care to prevent pure water from coming in contact with hot water or with the components destined to the passage thereof, hot water being classifiable, from the hygienic-sanitary point of view, in a lower category than cold water.

[0013] In particular, the present invention relates to a tap for the delivery of water, comprising the characteristics expressed in the characterising part of Claim 1.

[0014] Further features and advantages shall become more readily apparent from the detailed description of some preferred, but not exclusive, embodiments of a tap for the delivery of water, in accordance with the present invention.

[0015] This description shall be made hereafter with reference to the accompanying drawing, provided solely by way of non-limiting indication, in which the only figure is a partially sectioned elevation view of a tap for the delivery of water according to the present invention, indicated in its entirety as 1.

[0016] As the accompanying figure shows, the tap 1 comprises a base 2 able to be fastened to a sink or washbasin by means of appropriate fastening means, and a delivery element 3 extending laterally from the base 2 and away therefrom.

[0017] More specifically, the delivery element is engaged to the base 2 in correspondence with a first extremity 4 and is internally hollow to define a first delivery conduit 5. The first delivery conduit 5 presents an outlet 6 obtained in a second extremity 7 opposite to the first extremity 4 of the delivery element 3. Inside the dispensing element 3 is also present a second delivery conduit 8 having an inlet extremity 9 in correspondence with the base 2 and an outlet extremity 10 opposite to the inlet extremity 9. The outlet extremity 10 of the second delivery conduit 8 ends in correspondence with at least an outlet port 11 obtained through the delivery element 3.

[0018] In accordance with a preferential feature of the invention, the outlet 6 and the output port 11 are advantageously mutually offset in axis and distanced, so that the fluids delivered through the first delivery conduit 5 are sharply separated from the fluid delivered through the second delivery conduit 8, providing the user also with the visual perception of the type of fluid delivered, based on its origin.

[0019] In detail, the output port 11 of the second delivery conduit 8 is obtained in the delivery element 3 between the outlet 6 of the first delivery conduit 5 and the base 2. Alternatively to the above description, it is possible to provide for the second delivery conduit 8 to develop to the second extremity 7 of the delivery element 3, so that the output port 11 is positioned adjacently to said extremity 7, with the outlet 6 of the first delivery conduit 5 interposed between the output port itself and the base 2.

[0020] As the accompanying figure shows, inside the base 2 extends a first supply conduit 12 hydraulically connected to the first delivery conduit 5. More in detail, the first supply conduit 12 presents a first extremity 12a in fluid communication with the first delivery conduit 5 and a second extremity 12b hydraulically engaged to an inlet union fitting 13 for cold water coming from a first pipe 13a of the potable water supply pipeline. Also inside the base 2 extends a second supply conduit 14 hydraulically connected by means of a first extremity 14a to the first delivery conduit 5 and hydraulically engaged, by means of a second extremity 14b, to an inlet union fitting 15 for pure water. To the pure water inlet union fitting 15 is connected a second pipe 15a connected to the water supply pipeline with the interposition of a filtering element 15b or other purifying unit.

[0021] The tap 1 further comprises a third supply conduit 16 presenting a first extremity 16a in fluid communication with the inlet extremity 9 of the second delivery conduit 8 and a second extremity 16b hydraulically engaged to a hot water inlet union fitting 17. To the hot water inlet union fitting 17 is connected a third pipe 17a coming from a boiler or other apparatus for supplying hot water.

[0022] To the supply conduits 12, 14, 16, are also associated valve means 18 to place the first delivery conduit 5 in fluid communication with the first and the second supply conduit 12, 14 and the second delivery conduit

8 with the third supply conduit 16.

[0023] More in detail, the valve means 18 comprise a first valve 19 situated inside the base 2, operatively interposed between the first delivery conduit 5 and the cold water inlet union fitting 13. This first valve 19 acts on the first delivery conduit 12 to regulate the passage of cold water in the first delivery conduit 5.

[0024] The valve means 18 further comprise a second valve 20, also positioned inside the base 2 operatively interposed between the second delivery conduit 8 and the hot water inlet union fitting 17. The second valve 20 is active on the third supply conduit 16 to enable and regulate the delivery of hot water in the second delivery conduit 8.

[0025] Also provided is a third valve 21 operatively interposed between the first delivery conduit 5 and the pure water inlet union fitting 17. Said third valve 21 is engaged on the second supply conduit 14 to enable and regulate the delivery of pure water through the first delivery conduit 5.

[0026] Preferably, the first and the second valve 19, 20 can be actuated by means of a first common control organ 22 mounted on the summit of the base 2, selectively to open and close the supply of water, respectively hot and cold, to the first and to the second delivery conduit 5, 8. Moreover, the third valve 21 is able to be actuated by means of a second control organ 23, to open and close selectively the supply of pure water to the first delivery conduit 5.

[0027] It is also possible to replace the third valve 21 with a switching valve or equivalent selector means to place the first valve 19 selectively in fluid communication with the cold water inlet union fitting 13 or with the pure water inlet union fitting 17.

[0028] The present invention solves the problems noted in the prior art and achieves the proposed aims.

[0029] First of all the present invention, providing for the passage of pure water through the same delivery conduit used for cold water, assures surprisingly greater guarantees relative to the characteristics of the pure water delivered. The pure water is no longer subject to long intervals of permanence inside the delivery conduit since, through the same delivery conduit, flows also the cold pipeline-supplied water which is generally delivered more frequently than pure water. In other words, the sharing of the same delivery conduit by the pure water and by pipeline water and the frequent use thereof prevents pure water from stagnating inside the delivery conduit. The water that remains in the delivery conduit, after the closure of the third valve, is thrust outside by the subsequent flow of pipeline water.

[0030] Moreover, the structure of the subject tap allows to deliver hot water separately from cold water and from pure water. This feature is important since it allows to prevent pure water from coming in contact with the components dedicated to the flow of hot water, containing a considerable quantity of impurities.

[0031] It should also be considered that the subject

tap is suitable to be advantageously used in all those circumstances in which, due to market demands or legal regulations, the separation of the hot water flows from the cold water flows is required.

[0032] It should further be noted that the separation of cold water from hot water is also guaranteed during the output phase by the delivery element, since the outlet 7 of the first delivery conduit 6 and the output port 12 of the second delivery conduit 9 are mutually distanced.

[0033] Furthermore, it should be observed that the separate supply of hot water from that of cold water allows to eliminate the need to install in the base auxiliary one-way valves and/or to adopt other contrivances necessary in known taps, to prevent, when simultaneously delivering hot and cold water, the latter from invading, due to the pressure differential, the hot water delivery conduit. Naturally, this entails a simplification of the structure of the tap and consequently lower manufacturing costs than those required by common taps.

#### Claims

##### 1. A tap for the delivery of water, comprising:

- a first supply conduit (12);
- a second supply conduit (14);
- a third supply conduit (16);
- a first delivery conduit (5) hydraulically connected to said first and second supply conduit (12, 14);
- a second delivery conduit (8) hydraulically connected to said third supply conduit (16);
- valve means (18) operatively associated to said supply conduits (12, 14, 16) to place the first delivery conduit (5) in fluid communication with the first and the second supply conduit (12, 14) and the second delivery conduit (8) with the third supply conduit (16), characterised in that said first supply conduit (12) is hydraulically engaged to a cold water inlet union fitting (13), in that said second supply conduit (14) is hydraulically engaged to a pure water inlet union fitting (15) and said third supply conduit (16) is hydraulically engaged to a hot water inlet union fitting (17), so that the first delivery conduit (5) is selectively traversed by cold water and pure water, whilst the second delivery conduit (8) is traversed exclusively by hot water.

- ##### 2. A tap according to claim 1, wherein said valve means (18) comprise a first valve (19) operatively interposed between the first delivery conduit (12) and the cold water inlet union fitting (13) and a second valve (20) operatively interposed between the second delivery conduit (8) and the hot water inlet union fitting (17), said first and second valve (19, 20) being able to be actuated by means of a first

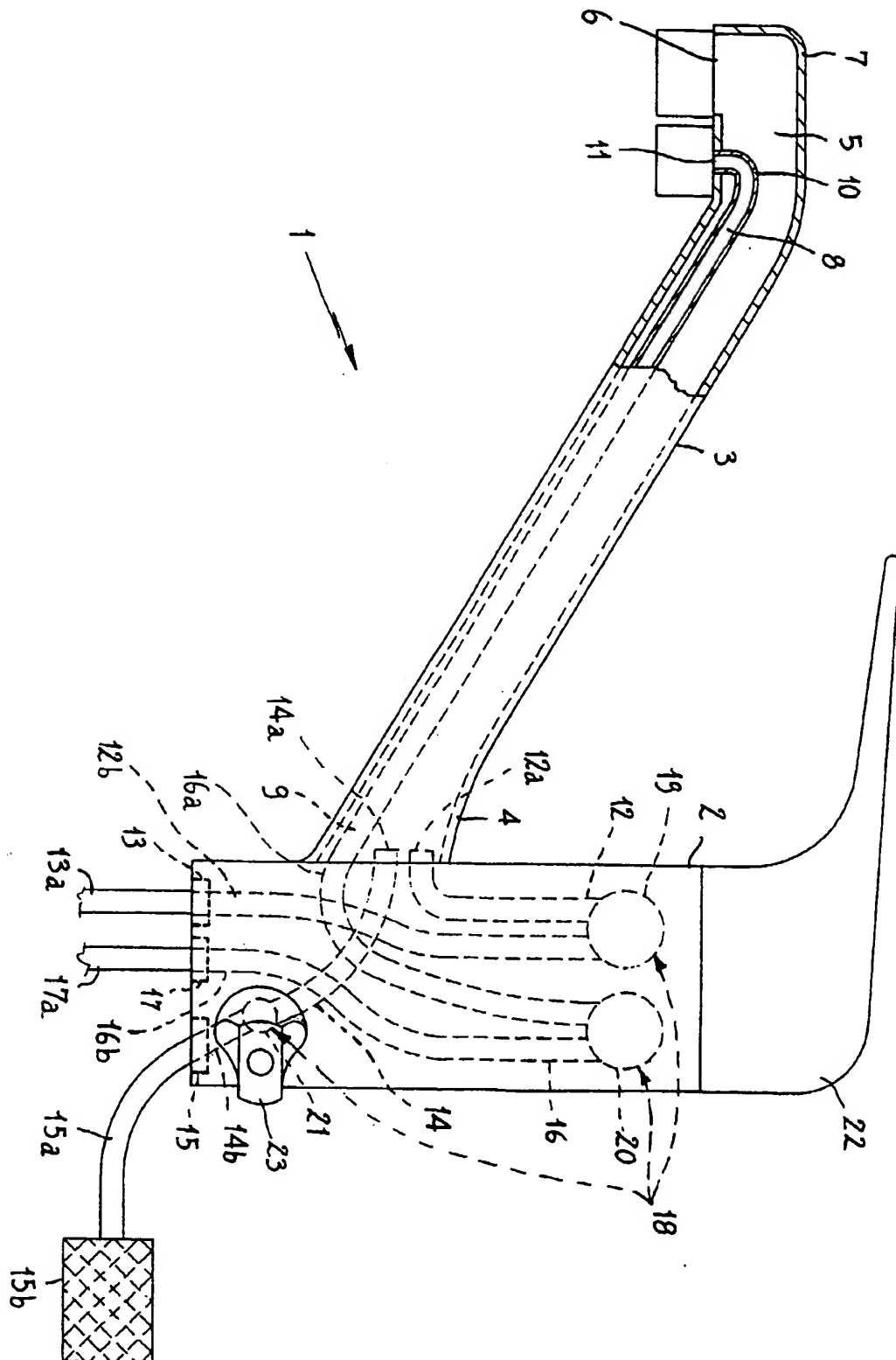
common control organ (22) to open and close selectively the supply of water to the first and to the second delivery conduit (5, 8).

- ##### 3. A tap according to claim 2, wherein said valve means (18) further comprise a third valve (21) operatively interposed between said first delivery conduit (5) and said pure water inlet union fitting (15), said third valve (21) being able to be actuated by means of a second control organ (23) to open and close selectively the supply of pure water to the first delivery conduit (5).

- ##### 4. A tap according to claim 2, wherein said first valve (19) is also operatively connected with the pure water inlet union fitting, (15), selector means being operatively associated to said first valve (19) to place it selectively in fluid communication with the cold water inlet union fitting (13) or the pure water inlet union fitting (15).

- ##### 5. A tap according to claim 1, wherein said second delivery conduit (8) extends inside the first delivery conduit (5).

- ##### 6. A device according to claim 5, wherein said first delivery conduit (5) presents an outlet (6) for the delivery of pipeline-supplied water and of the pure water and said second delivery conduit (8) presents an output port (11) for the delivery of hot water, said outlet (6) and said output port (11) being mutually offset and distanced.





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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 83 0716

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 872 601 A (WALKER DAVID MACALISTAIR) 21 October 1998 (1998-10-21)	1,5,6	E03C1/04
A	* column 5, line 21 - line 39 * * figures 1,2 *	2-4	
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A	EP 0 577 164 A (TELMA GUZZINI S R L) 5 January 1994 (1994-01-05) * column 4, line 27 - line 49 * * figure 1 *	2-6	
The present search report has been drawn up for all claims			TECHNICAL FIELD SEARCHED (Int.Cl.7)
			E03C
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>26 Apr11 2000</b>	Examiner <b>Urbahn, S</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1508 (08.02.92) (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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